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The Association of American Nurserymen.

THE nurserymen of the world have played such an important part in the general advancement of horticulture, that all planters and lovers of plants have something akin to a personal interest in their prosperity. That our parks and gardens have been enriched with such a variety of beautiful plants from all quarters of the globe is largely due not only to the business enterprise of nurserymen, but also to their intelligence and skill, and, we may add, to their enthusiastic, self-denying and too often unappreciated devotion to the cause of horticulture. We are sometimes inclined to criticise the glowing descriptions and highly colored pictures of novelties in the trade catalogues, but, on the other hand, these same catalogues must take rank among the most effective means of disseminating information of practical value concerning trees and shrubs and fruits and flowers. It is to the trial grounds of the great nurseries, more than to any other place, that planters have been obliged to turn for object lessons in cultivation and for instruction as to the hardiness, the beauty and the distinctive characteristics of trees and plants for the forest, the orchard and the garden. This means not only that nurserymen must be depended on for the material used in landscape gardening, forestry and fruit growing, but that a good share of our knowledge of these subjects has been derived from their studies and labors.

All persons, therefore, who take any interest in gardens or forests cannot but hope that the annual meeting of the Nurserymen's Association, to be held this week at Detroit, will prove successful in point of attendance and in the value of its deliberations. A large proportion of the subjects considered will be distinctively of a business character, but even these may benefit every tree-buyer. It was concerted action at a former meeting which effected the just reduction of freight rates for nursery stock, which is a direct advantage to every planter. Much remains to be done towards insuring such stock in transport against disastrous delays and exposure and towards holding railroad and express companies responsible for safe and speedy delivery, and this subject will, no doubt, command the attention of the meeting. But perhaps the greatest benefit derived from these gatherings is found in the interchange of personal experience among the members. Very often papers of real and permanent value are read and published in the reports of the association. But the discussions which follow the reading of these papers are generally of more importance still, having a freshness of suggestion and a directness of aim which are never so manifest elsewhere as in the flashes which come from the contact of alert minds in friendly argument. Fortunately, there are no secrets in American nursery practice and no attempt at concealment interferes with the mutual improvement which comes from this reciprocity of ideas, and in this way the garnered experience of individuals in every part of the country becomes the common property of all.

Conventions of nurserymen and florists would be well worth attending for this single purpose, even if they were not made attractive by pleasant social features, by opportunities for enlarging acquaintance, by offering a timely period of recreation after the busy season has passed. No doubt they will prove more useful still in many directions as they become more thoroughly organized. They might render good service to horticulture by a systematic effort to secure uniform and correct nomenclature of trees and shrubs. It would be directly in the line of their labors to devise some plan for the better classification of cultural varieties of the different fruits and some comprehensive system for describing and identifying them. They might collect data from various stations in the country as to what fruit and ornamental trees are reliable in different sections and what ones are likely to fail. Indeed, there are fields without number towards which they can direct united effort, and so many skilled cultivators scattered over so wide a territory and working for a single purpose could hardly fail to accomplish results of lasting importance to horticulture or pomology.

Walks and Drives.

THE walks and drives play an important part in determining the effect produced by villa-grounds and country places. Whether composed of gravel, asphalt or simply of earth, they form wide lines, distinct from their surroundings in color and texture, drawn through lawns and shrubberies. As such they are conspicuous features; they are features, however, which have no real beauty in themselves, and, therefore, they should be used with care and discretion.

It is desirable to limit them as much as possible—to make them neither more numerous, nor wider, nor longer than necessary. Too often we see in small places a walk almost wide enough for a drive, and a drive almost wide enough for a park-way; a drive where a walk would have served every purpose, or walks which serve no purpose at all. It is no infrequent thing to find, instead of a fine stretch of lawn, an assemblage of winding paths, leading nowhere except back to the houses again, with small scraps of turf between them. Unity of effect is ruined by such an arrangement and no practical end is served. If for any reason the borders of the lawn are often visited, the turf itself may be walked on, for, unless exactly the same track is perpetually followed, a great deal of walking will not injure it. And if it is objected that the circling paths give access to the flower-beds with which they are bordered, the answer must be that the flower-beds are as much out of place upon a lawn as the paths themselves. Of course in a flower garden it is different. There the beds and the walks leading to them are the main concern, and whatever grass exists may rightly be subordinated to them. But if it is desired that turf shall preponderate in the effect, then the less it is cut up and disturbed the better. There is nothing more beautiful in itself, and nothing which gives so marked an expression of size, unity and restfulness to a place as a wide sweep of lawn. In the majority of cases it is better worth striving for than anything else;

and it should be jealously preserved from the presence of any accessories except those which may serve to enhance its proper character and increase its apparent size. It may be surrounded with trees and shrubs, and, if it is of considerable size, a few isolated specimens may be brought forward from such bordering plantations. But a lawn must be very large to admit of any other decoration.

In his suggestive article in our issue of June 6th, Mr. Olmsted pointed out the mistake which is so often made in demanding that the best rooms of the house shall be on the entrance front. One great reason why they should not be, is that they should have the best outlook, that either a drive or a walk must give access to the entrance front, and that no matter how simply treated it may be, it cannot fail to detract from the reposeful character of the outlook. Nevertheless we often find that even when the lawn front of a house is not the entrance front, a walk is carried past the lawn entrance or by the piazza or the windows facing the lawn. A greater mistake could not be made than this. The smallest stretch of gravel or naked earth brought thus into the immediate foreground disturbs the effect from the house of the green expanse—injures its restfulness and decreases its apparent size. And looking towards the house the injury is as great as when we look out from it. Nothing is more pleasing to the eye than the foundations of a house springing from the green turf, clothed with vines and broken with low-growing shrubs. Then that most charming of all effects is secured—the effect of intimate union between the soil and the building it bears—between Nature's work and man's work. But the smallest line of gravel will ruin this effect if it runs parallel with the walls of the house. And the lawn itself will look infinitely more beautiful if there is no walk running away from the house and cutting it in two. There can rarely be a need for such a walk when the lawn front and the entrance front are not the same. Even if a flight of steps leads down to the lawn from porch or piazza, no path is necessary unless there is a strong temptation for feet to follow one another in a given direction. If this is the case, however, a gravel walk is, of course, preferable to a trodden track, which gives an air of neglect to a place. But such a walk should be as short as possible, and it should not be bordered with flower-beds.

When a place is quite small it is best to make all drives and paths straight if possible. The drive, if there is one, should not approach the street front of the house, and should be carried to the entrance elsewhere in as direct a line as convenience will permit. Or if entrance front and street front are the same let there be no drive, let the gate be opposite the door, and let the path run in a direct line between them. Of course, if there are irregularities in the surface of the ground they should determine the course of paths; but such cases are comparatively rare, and in all others there are many reasons why the straight line should be preferred. Every foot of grass is doubly valuable in very small grounds, and a straight path absorbs fewer feet than a sinuous one; it is difficult to give a graceful form to a sinuous line unless it is of considerable length; when the house walls and the street line lie near together their straightness seems to prescribe that, in the interest of harmony, the connecting line between them shall be straight as well; and the straight line is more simple in effect, and simplicity is the greatest of virtues in the arrangement of small grounds.

We learn from the *Prairie Farmer* that the farmers of Iowa have suffered considerable loss from a disease of their nursery stock of Apples, Plums, Rose and other plants. The disease shows itself in the formation of excrescences on the roots which are popularly called "cancers." The origin of the trouble is obscure, some attributing it to insects and others to fungi. There is probably no good reason for thinking that the trouble is due to insects, and, as far as fungi are concerned, Professor T. J. Burrill, who has examined diseased roots from Iowa, states that, although there is a considerable growth of the mould-like filaments of some fungus and swarms of bacteria on and in the exterior cells of the old bark, no one can say from this evidence that either of these causes the trouble, and he infers that, if the cause is a fungus, it comes rather from the soil than directly from a diseased plant to the healthy one.

The Cultivation of Truffles.

THERE are two things, truffles and terrapins, which no one dares to dislike, for, even if they are not exactly to our taste, they are always expensive, and we are, of course, willing to make martyrs of ourselves by pretending to like delicacies which only the favored few can afford to set before us. But there are a good many genuine admirers of truffles in America as well as in France, and they will be interested in two recent books on the cultivation of truffles—"*Manuel du Trufficulteur*," by A. de Bosredon, and "*La Truffe*," by Dr. C. de Ferry de la Bellone. Of the two, the last-named is the better from a scientific point of view. M. Bosredon, whose style has a touch of Daudet about it, begins with an account of an interview with an aged rustic, *Père* Chenier. The sententious *Père* Chenier wags his head gravely and enunciates the fundamental law of truffle culture: "*Semez des glands, vous récolterez des truffes.*"

The discovery of the law that, if one sows acorns, he will gather truffles, a discovery which has enriched many owners of barren land in some parts of France, was made by accident about eighty years ago. The growth of the truffle has always had an air of mystery about it. When one wants a crop of beans he sows beans. But the case of the truffle may be compared roughly to what would happen if one should get a crop of beans by planting bean-poles. The explanation of this anomaly is well stated in "*La Truffe.*" Every one knows that truffles grow underground, and are hunted, if one may use the expression, by pigs and dogs whose scent is acute. At first, they were not even supposed to be plants at all, but later they were believed to arise from the punctures of roots by insects, still later, to be morbid conditions of the roots themselves, and now they are known to be fungi which are probably parasitic on roots of different trees, especially Oaks.

Unfortunately, *Père* Chenier's law applies only to regions where truffles occur naturally, and there, by sowing acorns of trees growing in truffle-bearing regions, there can be produced in a few years, seven to ten, crops of truffles which continue so long as the trees are in good condition. Fortunately for the French, the best soil is a thin, calcareous one not of much value for other crops. Dr. Ferry gives a chart showing the localities where truffles can be grown in France, and practically they are cultivated nowhere else. As all champagne comes from Champagne, so all truffles come from Perigord—at least, the labels say so. There is a considerable number of species of true truffles which belong to the *Tuberaceæ*, a sub-order of *Ascomycetes*, not to mention the false truffles which belong to the *Gasteromycetes* or puff-ball family, and a pretty full account of them is given in "*La Truffe*," together with some figures which, of course, are not to be compared with the superb plates in Tulasne's classic "*Fungi Hypogæi.*"

Commercial truffles have not yet been found in the United States, although a few species of the truffle family have occasionally been found by botanists in the Eastern and Southern States. California seems to be much richer in *Tuberaceæ*, and Dr. H. W. Harkness has detected a considerable number of species in that State. Apart from their rarity, the American species, so far as known, cannot compete in flavor with the French, and it is hardly likely that truffle culture will soon be undertaken in the United States.

Dr. De Ferry's book is full of interesting details. We

have heard of fat pigs, learned pigs and precocious pigs, but it was left to his sympathetic pen to portray the well-bred, conscientious, pains-taking pig, the pig whose superior education alone makes him worth from sixty to seventy dollars. This comparison of the mental, and, if one dares to say so, the moral qualities of pigs and dogs, would delight any comparative psychologist. It is also interesting to read of the tricks of truffle poachers and the intricacies of the laws for their punishment. Nothing seems wanting, except, perhaps, some notice of the lives of the distinguished *gastronomes* whose talents were unselfishly devoted to the preparation and digestion of truffles. Even art is made to contribute to the value of the book, the frontispiece being a reproduction of M. Paul Vayson's Truffle Hunter, exhibited in the Salon of 1886.

W. G. Farlow.

The Domestication of Wild Fruits.

THERE are two reasons why we should attempt the improvement of our more promising wild fruits. First, there is a prospect that they may become valuable additions to our orchards or gardens; and second, the culture of these fruits offers a favorable opportunity to study the influence of changed conditions upon the characters and properties of these plants.

Regarding the first of these propositions we are not justified in assuming that all the fruits not now in cultivation are incapable of improvement. To argue that they must have been tried and found wanting in prehistoric times, because history gives no record of their cultivation, would be quite unwarrantable. Neither are we justified in assuming that because no attempt has been made to improve them, success is sure to follow systematic efforts. Our knowledge is hardly sufficient to prophesy what may be the outcome in submitting any given wild fruit to the experiment of systematic and prolonged cultivation.

To the scientific horticulturist the second proposition offers a more hopeful field of labor than the first. Whether the attempt to domesticate a wild fruit proves successful or not, from an economic point of view, it can hardly fail to add to our knowledge. The origin of our cultivated fruits, and especially the degree of their present excellence that may be ascribed to man's aid, is, to a considerable extent, involved in obscurity. The submitting of a hitherto untested wild fruit to cultivation, and the systematic study of the changes that result from such treatment, may throw light upon the historical development of our present cultivated fruits, and what is of still greater importance, it may furnish valuable hints for their further improvement.

The Juneberry (*Amelanchier Canadensis*), in some of its varieties, possesses qualities that commend it for experiments in domestication. It belongs to the Rose Family, and is thus botanically related to the best fruits of temperate climates. The plant is hardy, prolific, and exhibits remarkable variation. The fruit in its best natural state is of fair quality, attractive in appearance, sufficiently large to admit of convenient gathering, firm enough to bear carriage; and it keeps for a considerable time after being picked. In stature the species varies from a low shrub to a tree thirty to forty feet in height, and forms, grouped within the same botanical variety, sometimes exhibit nearly as much variation in height. The fruit is often very small, dry and seedy, and utterly worthless for any economic use; but in certain varieties it attains a diameter of fully half an inch, is sweet, fairly juicy, and delicately flavored.

Thus far, the finest fruit has been found on a form which is said to have come from the Rocky Mountains, and which is the only one I have attempted to cultivate. It appears to have been first brought to public notice by Dr. Hall, of Davenport, Iowa, who grew it and advertised the plant for sale about ten years ago. Mr. Benjamin G. Smith, of Cambridge, introduced it into Massachusetts, and received a silver medal from the Massachusetts Horticultural Society for it. Through the courtesy of Mr. Smith a few plants of this variety were sent to the New York Agricultural Experiment Station in the year 1882.

These plants, which were well rooted layers, were set out in a moderately fertile clay loam, and have since received the same culture that is given to Raspberries. They have now grown into rather straggling shrubs about four feet high, though Mr. Smith states that on his grounds plants set some years earlier have attained the height of six feet. The shrub appears perfectly hardy in the climate of Geneva. It varies considerably in productiveness in different seasons, but during the past three years has borne at least a fair crop. The fruit, a miniature pome, varies in size from a fourth to a full half inch in diameter, and in its external appearance bears a striking resemblance to that of the Huckleberry, being deep purple in color, and having, like that fruit, a persistent and protruding calyx. The flesh is white, or slightly pinkish, and has a peculiar delicate, faintly aromatic flavor that is not in the least unpleasant, although lacking in intensity. With sugar and cream, the flavor is perceptibly heightened, and some persons who have tasted it in this way call it delicious. The seeds are small, soft, and though inclosed in carpels, are little noticeable in eating the fruit.

It should be said that this plant is not without its enemies. A fungus, *Ræstelia penicillata*, attacks the foliage and fruit in some localities, though I have not seen it at Geneva. The curculio infests the fruit to some extent, and the English sparrow takes his share, but all these obstacles have not prevented good crops from our trial-grounds.

The most promising field for improvement in this fruit doubtless lies in the growing of seedlings, and in the crossing of varying forms. I have made sufficient experiments to demonstrate that the seedlings may be very readily grown; and I have a considerable number now on trial, though none of them have fruited as yet. I hope to secure plants of other varieties, and from distinct localities, in order to try the effects of cross-fertilization. One reason why I have been especially interested in this fruit is that it offers an opportunity to test a hypothesis. I have been struck by a coincidence that in almost all our fruits and vegetables, a pale flesh is accompanied by a mild flavor, while a dark-colored flesh is accompanied by a rich flavor,* and in fruits that contain much acid, the acid almost always increases with the depth of color in the flesh. The fruit of the only form of the *Amelanchier* with which I am well acquainted has a white, or very nearly white, flesh, and while the flavor is, as has been stated, quite delicate, it is too little marked to render the fruit generally popular. If by growing seedlings, or by cross-fertilization, we can secure varieties that have a darker-colored flesh, I should expect that they would have a more pronounced flavor, and might then rank among our delicious fruits. It is in this direction that I am chiefly working.

Geneva, N. Y. *E. S. Goff.*

New or Little Known Plants.

Pitcairnia Jaliscana.†

THE order *Bromeliaceæ* is scarcely represented within the limits of the United States aside from the few species of *Tillandsia* which are found in Florida, and the Spanish Moss (*T. usneoides*) which drapes the trees so abundantly in the swamps and river bottoms of the South from the Dismal Swamp in Virginia to Texas and Mexico. In the extreme western borders of Texas a single species of *Hœchtia* has been found as an outlyer of the Mexican flora, and in southern Florida a West Indian species of

* A paper giving a large amount of data bearing upon this subject was contributed by the writer to the *American Naturalist*, for 1884, pp. 1203–1210.

† PITCAIRNIA JALISCANA, Watson, Proc. Am. Acad., xxii. 456. Acaulescent: basal bracts spinosely margined, and with attenuate, barbed appendages; produced leaves furfuraceous beneath, entire, linear, a foot long or more, by three or four lines broad: flowering stem glabrous, with numerous bracts; floral bracts mostly colored, dilated, much longer than the erect pedicels; petals scarlet, linear, nearly two inches long, twice longer than the acuminate colored sepals; stamens and style slightly exserted.

Catopsis; and these are all. The genera with more showy flowers than these, such especially as *Billbergia* and *Pitcairnia*, are more strictly tropical in their character. *Pitcairnia* is, next to *Tillandsia*, the largest genus of the order, and its seventy-five species are found mainly in the region lying east of the Andes from Brazil to Mexico, while none occur outside of the tropics. On account of their highly ornamental flowers a very large proportion of them have been in cultivation in the gardens of Europe, but they are rarities in our own hot-houses.

We have figured for this week (page 197) one of two species of *Pitcairnia* which were discovered by Dr. Edward Palmer in 1886, near Guadalajara in Mexico, the most northern locality on the continent for any member of the genus. The striking colors of the flowers and bracts cannot be shown, but most of the other characters are well represented. The short outer bract-like leaves that cover the swollen base of the stem are prolonged, as in many other species, into slender appendages which are very sharply barbed. The plant is otherwise unarmed. The few proper leaves are long and linear, and are covered on the under side with a white, scurfy pubescence. The floral bracts are mostly of a deep rose color, and the flowers themselves are bright scarlet. Heat and drought are the delight of these plants, or at least they are capable of enduring and thriving under an extreme of both. The present species was found growing in the crevices of rocks in deep, hot ravines, and would probably need, like the rest of the genus, the heat of a stove for its successful cultivation. *S. W.*

Cypripedium bellatulum is the name given by Professor Reichenbach to a new species which is closely allied to *C. Godefroyæ*, and which might fitly be described as a giant form of that fine species. The flowers are described by Messrs. Hugh Low & Co. as nearly four inches across, and many of the leaves are ten inches long, and more than one-fourth as wide, and marked as finely as those of *Phalænopsis Schilleriana*, while their under surface is purplish red throughout, or marbled with deep red. The flowers are of perfect shape and profusely spotted.

Plant Notes.

Prunus pendula.

THE tree which is figured on page 198 of this issue is one of the loveliest in flower, and the most pleasing and graceful in habit of all the plants which have been transferred from the gardens of Japan to those of this country. It is the *Prunus pendula* * of Maximowicz; a species first described by Von Siebold in his "*Synopsis Plantarum Œconimicarum universi regni Japonici*," a work which, unfortunately, I have been unable to find in this country. M. Franchet has kindly examined, however, the copy of this rare book in the Paris Museum, and informs me that Von Siebold in his description of the plant retained the Japanese name *Itosakura*, that is pendulous, for this species, so that Maximowicz, instead of adopting Von Siebold's specific name, translated it into Latin, changing his *Cerasus Itosakura* into *Prunus pendula*. Were the laws of botanical nomenclature rigidly adhered to, it should be known as *Prunus Itosakura*, a change which, under all the circumstances of the case, it is certainly not desirable to make, at least for garden purposes.

Prunus pendula, as now seen in gardens, has probably been somewhat changed by long cultivation from the wild type; indeed, specimens of what is evidently the same plant collected in the forests in the central part of Nipon vary very considerably from it in the length and breadth of the calyx-tube and in the much smaller corolla. Here it is a small tree twelve to fifteen feet high, with wide-spreading, flexible, pendulous branches, those on the lower part of the stem horizontal, with pendulous ends, the upper widely arching from the trunk. The bark resembles that of the common Cherry tree, although light brown in color. The flowers, which precede the leaves, are produced from scaly, lateral buds in two to four flowered fascicles. They are borne on long, slender, pubescent pedicels, which are destitute of bracts. The tubular calyx and incised calyx-lobes are densely pubescent and dark red in color. The petals are half an inch long, ovate or obcordate, pale rose colored, and more than twice as long as the stamens. The ovary is slightly, and the style is densely, covered with long, nearly white, hairs. The leaves are three or three and a half inches long, slightly hairy, when young, on the under side, twelve to fifteen ribbed, ovate and longly acuminate, sharply glandular-serrate, with two conspicuous glands near the base of the blade. The stipules are linear, glandular, and, like the short petioles and young shoots, pubescent. The fruit is black, the size and shape of a pea.

A second species of *Prunus* (Fig. 37), very similar in general appearance to *Prunus pendula*, is confounded with it in gardens here. It has the same general habit and the same long, pendulous branches, but the bark is darker, and hardly to be distinguished from that of the common Cherry tree. The flowers are corymbose on short leafy branches, and the pedicels are conspicuously bracted at the base, and, as well as the shorter and paler calyx tube, are covered with a few scattered hairs. The petals are more narrowly ovate than those of the last species, entire and rarely truncate, much paler pink or nearly white in color. The ovary is quite smooth, but the style is densely coated with hairs. The leaves which appear shortly after the opening of the flowers are broader, thinner and more deeply and irregularly cut on their margins and are only 6-8 ribbed. They are pubescent on the under side, as well as the petioles and young shoots, and have two conspicuous orange-colored glands at the base of the blade. Their larger stipules are three-lobed and glandular. The corymbose inflorescence of this plant, the forked stipules and the texture and color of the young leaves point to some form of *Prunus Pseudo-Cerasus*, but the style is conspicuously hairy, and I therefore very doubtfully refer it to Maximowicz's *Prunus Miqueliana*,* authentic specimens of which, however, I have not been able to examine.

The two species are cultivated in nurseries under the name of *Cerasus Sieboldii pendula flore roseo*, and *flore carneo*.

Under the name of *Cerasus Herinquiana* M. Lavallée described and figured in his *Icones, t.* xxv., a plant which seems identical with the second of these two Cherries.

These plants were sent to the Arnold Arboretum several years ago from one of the Dutch nurseries. Both species flower here every year and are exceedingly hardy, requiring no special care or cultivation. They can be increased by grafting upon the common Cherry. The grafts should be inserted close to the ground in order to secure the peculiar habit and full beauty of these trees. When grafted as standards, as is often the case in nurseries, they are then less graceful and lose much of their peculiar habit of growth.

Our illustration is from a fine specimen on the estate of Arthur Blake, Esq., in Brookline, Massachusetts.

C. S. S.

The finest varieties of the common Lilac (*Syringa vulgaris*) in the large collections in the neighborhood of Boston are Philamon and Marie Lagrange. The former has large, broad, compact panicles of dark purple-red flowers, nearly half an inch across the limb when expanded. This has the deepest and richest colored flowers of all the Lilacs. Marie Lagrange has very large pure white flowers in immense panicles. Both varieties are of European origin; and they grow rapidly and vigorously, and soon make fine specimens. *C. S. S.*

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* *Prunus pendula*, Maximowicz, *Bull. Acad., St. Petersburg*, xl. 690.
"*Cerasus Itosakura*," Siebold, *Pl. Œcon.*, 360.
P. subhirtella, Miquel, *Prol.* 23, in part;—Franchet and Savatier, *Enum. Pl., Jap.* 1, 118.
Cerasus pendula rosea, Siebold, *Catal.*, 531,—*Floral Magazine*, x. *t.* 536.
Sen isi Kaido, Ito zakoura, Savatier. *Kwa-wi*, 72, Arb. 1, *t.* 3.

* *Prunus Miqueliana?* Maximowicz, *Bull. Acad., St. Petersburg*, x 692.
P. incisa, Miquel, *Prol.* 25 (not Thunberg).
Cerasus Herinquiana, Lavallée, *Icones, t.* xxxv.
Cerasus pendula rosea, Hort. in part.

Cultural Department.

Thinning Fruits.

THE systematic thinning out of fruit has hardly received the attention it deserves, either at the hands of commercial growers or of amateurs. The former class particularly argue that in the case of large trees it is often impossible, and that even when it can be done, the time and labor expended bring no corresponding profit. I am inclined to think, however, that when it is intelligently practiced the thinning of fruit almost always pays, and often pays large returns. In favorable seasons some varieties of fruits set far more than the trees can fully develop and mature. In such cases natural or artificial thinning must be resorted to, to secure satisfactory results. The army of curculios, codlin moths, birds and fungi assist in this matter with great energy, but generally with little discrimination. And yet without their aid, it must be confessed that the fruit grower would often find thinning an imperative duty.

Fig. 35.—Pitcairnia Jaliscana.

If half the crop of Apples, Pears or Peaches on a tree were removed, those remaining would frequently aggregate as much in bulk as the whole would if allowed to remain, and would probably yield as much money, to say nothing of the diminished labor of handling. Again, well grown fruit meets a readier sale. Such Pears as the Seckel, which grow in clusters, can be thinned with decided benefit, and perhaps it is the small varieties generally that pay the best for thinning, as increase of size is more readily appreciated in the smaller kinds. Apples and Pears which incline to cluster, even in twos, are generally more defective, by reason of insect depredation, than those borne singly. The Beurré Bosc is one of the latter kind and not prone to overbear, and if attacked by insects, it is generally in the calyx. The Bartlett, when well set, is in pairs and triplets, and the point of contact is generally the seat of insect operation. The early thinning of these clusters to single specimens, therefore, gives fairer and larger fruit for the trouble. On the other hand, Marie Louise has never borne for me a fine flavored specimen except on a light crop; with a full crop, even when severely thinned, they attain cooking qualities only, which is even more than I can say of the Mount Vernon. Indeed, it is yet an unsolved problem with me whether the lightest kind of a crop of the latter would give me specimens of tolerable table quality. Clairgeaus are very prone to overbear here and thinning is an absolute necessity if their quality is to be brought above mediocrity.

Peaches can be fairly thinned by pruning the trees, which is the most feasible method. But when this is neglected and the trees are full set, the removal of half to two-thirds of the fruit, after the natural dropping is over, will be found beneficial, not only enhancing the size, quality and value of those remaining, but saving the tree from breaking down. With Peaches it is size that tells, and the larger the Peach, the greater the proportion of flesh to stone. A friend in California writes that the Peach trees there did not contain more than one-third as many as lay on the ground after the Chinamen had completed the work of thinning. With Chinese labor here, or his rate of wages, this question of profit in our large Peach areas, with their enormous products, would still be a debatable one, and whether our markets would stand a sufficient advance in prices to compensate for the increased expense, is, to say the least, problematical.

Thinning Strawberries is sometimes practiced to secure extraordinary berries for exhibition, but the only practical way to improve the quality of the crop is to thin the plants. If allowed to run in thick matted rows they generally become too crowded for the best results, and many plants must, of necessity, become weak and unfruitful. No better evidence of this fact can be adduced than to compare the crop on plants grown in hills with the same number of plants in thick matted rows. The hill system means extra labor, it is true, but the improved quality of the crop will go far to compensate for it.

Pruning is also the best method of thinning and improving the quality of the Grape crop. With judiciously pruned vines to start with, the after thinning is simple and easy. All that is required is to rub off the superfluous buds and shoots. A vine producing twenty-five pounds of fruit in clusters of half a pound and upwards, would bring more money than one producing the same number of pounds in clusters of one-quarter of a pound each, give more satisfaction to the grower for home consumption, and save labor and time in gathering.

The sum of the matter is, that in most cases, larger, more

beautiful and finer fruit can generally be raised when a very considerable portion of the sets are removed. Apples or Peaches when crowded closely along a limb are no more able to attain full development than Beets or Cabbages when set too closely in a row. It will generally pay to reduce the number of sets in some way. The exceptions in the case of Pears, mentioned above, simply prove that some varieties will not respond to this treatment in some places. These facts the fruit grower must learn by experience. The commercial grower raises fruit for the profit. He must study his market to know how far his gain from increased quality will warrant the increased expense of thinning. The amateur, who prides himself on fine specimens for exhibition, or for his table, does not stop to consider the financial side of the question. He simply takes the necessary steps to secure what he wants. His labor in this direction is often really a pastime, and if he does not reap his reward, in his satisfaction from day to day, he is pretty certain to do so when his crop matures. Those who have not studied and experimented in this field will be surprised to find that in many cases the very finest fruit is produced only after thinning has been carried on to an extent that would seem to the novice most extravagant.

Montclair, N. J. *E. Williams.*

Fig. 36.—Prunus pendula.

Lantanas.—These are properly classed among green-house plants, but they make admirable bedding plants, and it is unfortunate that they have so generally gone out of fashion. When grown as standards to the height of two or three feet they make plants of striking beauty. They are all rapid growers, and need a liberal supply of water when making wood and flowers. A correspondent of the *Gardener's Chronicle* makes the following selection of varieties from a large collection at the gardens of the Royal Horticultural Society at Chiswick.

One of the freest and strongest grown is named Ver Luisante, orange-red with orange centre, deepening in color with age; the young flowers open orange, and deepen in color as they mature. This would make a good exhibition specimen when well grown. Le Styx has very fine, rich, deep orange-red flowers, produced in large and bold trusses; it is a very free grower also. Mons. Boucharlat has fine and showy pale orange flowers; the individual blossoms are large, and they are produced in very fine trusses that are bright and striking; it is a remarkably good grower also, being strong and robust. La Patriote is a very pretty variety; the flowers open pale golden-orange, changing to pink, and with a rosy-pink centre; a fine and distinct variety. Venusta is salmon-colored with orange centre; very fine in the pip and truss; distinct, and very good. Clio opens gold, and gradually changes to lovely rosy-purple; fine pip and truss, and a good, free grower. Triomphe du Commire is of a pale lilac-pink color, deepening in color with age; fine pip and truss, and it can safely be marked very good. Grisette

is lilac and mauve, tinted with rose; the flowers open pale lemon, and change to the above; it is a good grower and very free. Rosa Mundi, rosy-purple, is very pretty indeed. Souvenir d'un Ami opens gold; the flowers then become orange-salmon, and finally the salmon deepens to rosy-purple; very fine pip and truss, and good habit. Comtesse de Beneval opens yellow, and changes to pale rosy-pink; it is a very pretty and free variety. Meteore opens cream, and changes to pink and pale rosy-lilac; it is a pretty and pleasing variety.

Coming now to what may be termed the yellow-flowered varieties, probably the best is Reveille, deep yellow in color, very fine and free. Pluie d'Or is pale golden-yellow, flowers and trusses alike small. Figaro, bronzy-yellow, is very free of bloom also. Bijou, orange and gold, is of dwarf habit, very free, and makes an excellent pot plant. Grappe d'Or is of a fine hue of gold, very dwarf in growth, and exceedingly free. Californie is of a distinct pale yellow color, good close habit, and very free indeed.

One of the best whites is Innocence; it opens pale lemon or primrose, then changes to white; of good habit and very free. Bouquet Blanc is yellow, changing to white. Lastly comes Le Lis, which opens pale yellow, and changes to pure white; good habit and very free. Perhaps, taking all things into account, this is the best white grown.

The best dozen varieties, selected from the Chiswick trial, will be found in Ver Luisante, Le Styx, Mons. Boucuarlat, La Patriote, Venusta, Clio, Triomphe du Commire, Comtesse de Beneval, Reveille, Bijou, Innocence and Le Lis.

Newly Transplanted Trees.—Young trees that were transplanted this spring generally look well, because of abundant rains, but it should be remembered that dry weather may come and with it comes danger. A vigorous growth of new shoots is proof that healthy new roots have formed, and that they are furnishing all the moisture needed to supply the leaves. But where there is little new growth, or none at all, it may be inferred that the root growth is small and unable to supply the tree with sufficient moisture. In such cases it is good practice to wrap the trunks, or shade them on the south side, and this will be especially beneficial if the bark shows signs of loosening or peeling off. Sprinkling the tree occasionally will help to check too rapid evaporation; to the same end the surface of the ground should be stirred and mulched, but the branches should not be cut back to diminish the leaf surface. *S. A.*

Why Vines Winter-Kill.—The hardiness of vines is generally based on the ability to pass through the winter safely, but the ability to do so is dependent on their condition in the fall when they go into winter quarters. In my vineyard are numbers of vines of Roger's Hybrids, such as Wilder, Lindley, Merrimack, besides Niagara, Brighton and Pocklington, that appeared when pruned in December to be thoroughly ripened and matured so far as we could judge. Many of these this spring are winter-killed, even to the root in some cases. This condition is unquestionably due to mildew. These vines that were mildewed most are injured most, while other vines of the same varieties that escaped this scourge are budding to the remotest extremities. Winter hardiness is dependent on summer hardiness, and the latter is of most importance.—*Orchard and Garden.*

Fig. 37.—Prunus Miqueliana (?)

Notes from the Rock Garden.

THE handsomest flower in the Rock Garden this week is the Siberian Columbine (*Aquilegia glandulosa*), the earliest of the genus to flower here, with the exception of the native *A. Canadensis*. It is a dwarf species growing eight or ten inches high, the flower stems each with one to three flowers, which have bright blue sepals fully an inch and a half long, pure white petals, and short and very stout, incurved spurs. The Siberian Columbine is perfectly hardy, but it is a plant of rather delicate constitution, or rather it is short-lived, and in order to obtain the best results it should be treated as a biennial and not depended on to flower more than once. If the seed is sown very early in the spring (it is better to sow it in heat during winter), the plants will be strong enough to transplant

early the first season into nursery rows, and then they can be transplanted again in the autumn into the rockery or herbaceous border, where they will bloom the next spring. Few plants better repay this trouble.

Thermopsis fabacea is a hardy Siberian perennial Pea, with pale foliage, and tall, erect racemes of large, clear yellow flowers, which is just now in all its beauty. It spreads rapidly from underground shoots and is almost too rampant in its growth for the rockery, and is better suited to a large herbaceous border, where, if left undisturbed, it will soon spread over a considerable area.

Tiarella cordifolia, known as the false Mitre-wort from its resemblance to its near relative the *Mitella*, is now a beautiful object in the shady parts of the rockery, where it is well established and thoroughly at home. It is a member of the Saxifrage Family, with heart-shaped, hairy leaves sharply lobed and toothed, and a solitary, slender, leafless scape a foot high, bearing a simple raceme of small, pure white flowers. The False Mitre-wort is found in cold, northern woods and on the Alleghany Mountains.

The small, yellow Lady's Slipper (*Cypripedium parviflorum*) is in flower. It is a pretty species, much smaller in all its parts than *C. pubescens* mentioned last week in these notes, rarely growing more than a foot high. It has a bright yellow lip flattened above and darker brown sepals and petals. The flowers are fragrant. It is a not infrequent inhabitant of northern bogs and wet woods.

Clintonia borealis is a stemless, perennial plant of the Lily Family, which recalls to the lovers of nature the name of De Witt Clinton. It is now in flower in a shady corner of the rock garden. The flowers are greenish yellow, half an inch long, with reflexed segments, and are produced in a few-flowered umbel, upon a low, slender, naked scape sheathed at the base by the stalks of the large, oblong leaves. The blue, oblong berries which ripen in August are very ornamental. This pretty plant inhabits northern woods, and is found also in those which cover the Alleghany Mountains; it is easily transplanted into the garden, when, if in a shady position and deep, rich soil are provided, it soon becomes thoroughly established.

Ixiolirion Tartaricum, var. *brachyantherum*, is a variety of the well known *I. Tartaricum*, a native of central Asia, and a member of the Amaryllis Family. It is a very hardy bulbous plant of easy culture, with narrow, grass-like leaves, trumpet-shaped, deep blue flowers, with reflexed segments, two inches in diameter when expanded, and borne in a loose terminal umbel, upon a scape twelve or eighteen inches high.

The latest Tulip in bloom is the dwarf *T. Biebersteiniana*, grown in some foreign nurseries as *T. Persica*. It is a native of southern Russia, the Caucasus and Persia, extending as far east as Turkestan. The flowers are an inch and a half deep, bright clear yellow, with acute segments, the three oute ones being somewhat broader than the others and flushed with pale green on the outside. The yellow stamens are bearded at the base. The scape rarely exceeds six inches in height, bearing below the middle two or three narrow, pale, glaucous, channeled leaves. This is a very attractive little plant which should find a place in every collection of hardy bulbs.

Smilacinia bifolia, or, as it is sometimes called, the Wild Lily-of-the-Valley, is a common northern plant with creeping root-stalks, often forming wide carpets, especially on rather dry knolls occupied by the White Pine and by the Oaks. It is a dwarf plant, three or four inches high, with two or rarely three heart-shaped clasping leaves, and short, single racemes of small, pure white flowers. It is easily cultivated and admirable for carpeting the shady parts of a rock garden, or to plant under shrubs and other taller growing plants.

Solomon's Seal (*Polygonatum multiflorum*) once was often found in American gardens, where at this season of the year it was a conspicuous and beautiful object. Now this handsome plant is so rarely seen here that it seems entirely unknown to people of this generation. Solomon's Seal has stout stems two feet or more in height, inclined to one side, alternate, ovate leaves, with pendulous, tubular, white flowers tipped with green, in axillary clusters. It is a bold and striking plant, well adapted for naturalization along the borders of shrubberies or wood-walks, where, if planted in deep rich soil, it soon makes broad clumps. *Polygonatum multiflorum* is widely distributed through central Europe and Russian Asia.

Few persons realize the beauty of our common wild Maidenhair Fern (*Adiantium pedatum*) in cultivation, or know what a useful plant it is for a shaded rock garden, where it soon spreads and throws up a profusion of its graceful fronds. It bears exposure to the sun, too, and is an excellent pot plant for the summer decoration of rooms or piazzas.

Boston, May 30th. C.

Notes from the Arnold Arboretum.

Prunus Jacquemontii is flowering here for the second year. It is a common plant in the drier regions of the north-west Himalaya from the province of Garwhal northward into Thibet and westward to Afghanistan, and is found at elevations varying from 6,000 to 12,000 feet. *Prunus Jacquemontii* is a shrub, which in the native country is said to attain a height of from six to ten feet, with long, slender, unarmed, divaricate branches, covered with pale gray bark. The leaves are two to two and one-half inches long, ovate or ovate-lanceolate, acute, sharply serrate, pubescent when young, on the mid-rib and primary veins, short petioled and destitute of glands. The flowers appear just before the leaves; they are solitary or often in pairs; very short pediceled, and quite cover the branches for several feet of their length. The tubular cylindrical calyx is about a quarter of an inch long, smooth, glabrous and striated, and twice the length of the acute lobes, which are hairy on the inside. The overlapping petals are bright pink, nearly circular, and about a quarter of an inch across. The ovoid ovary is quite glabrous, and is contracted into a long, narrow style. *Prunus Jacquemontii* has not produced fruit here yet; it is described as "globose, as large as the finger nail, red, juicy; stone nearly globose, a quarter to one-third of an inch in diameter, quite smooth." There is every prospect that this exceedingly interesting little Cherry will prove perfectly hardy in this climate, and that it will become a garden ornament of very considerable value. Dr. Aitchison, of the late Afghan Boundary Commission, who detected this plant in the Kuram valley and first introduced it into cultivation, in speaking of it says: "When the fruit is ripe and the plant is covered with it, which is usually the case, it forms a very pretty object in the landscape. It would be worth cultivating for ornamental purposes."*

The Dwarf Cherry of northern China (*Prunus humilis*) is in bloom. It is a low, delicate shrub, scarcely exceeding two feet in height, with virgate branches densely covered with pubescence during their first year, small, elliptical or obovate doubly serrate leaves, which are pubescent when young and small, pink or nearly white flowers, solitary or two or three together, and followed by small, edible, acidulous red fruit, rarely exceeding a third of an inch in diameter. It is a pretty little species, but less hardy and less valuable from a garden point of view than the closely allied *Prunus Japonica*, with which it has often been confounded, but which may be distinguished from it by its glabrous branches, ovate-lanceolate, long pointed, simply serrate, reticulate-veined leaves, and by its rather larger, deeper colored flowers. The double-flowered, white and rose-colored varieties of *Prunus Japonica* are not surpassed in beauty by any of the dwarf shrubs in the collection now in bloom; they are very hardy and are often seen in gardens. As these varieties of *Prunus Japonica* appear in garden catalogues under a variety of names, it may be an assistance to cultivators to add that to this species belong the plants grown under the names of *Prunus glandulosa*, Thunb.; *P. Sinensis*, Pers.; *P. Chinensis*, Blume, and *Amygdalus pumila*, Sims. *Prunus Japonica* is a native of Manchuria and northern China as well as of Japan, where it is generally cultivated both in its single and double forms.

Prunus maritima, the Beach Plum, is a handsome plant when in flower, and one which is too seldom seen in gardens. It is a common coast-plant, from Maine to Virginia, often covering sandy dunes adjacent to sea-beaches. It is a low compact shrub, rarely more than three or four feet high, which is now covered with small white flowers, which in the late summer are followed by a profusion of handsome globular purple or scarlet fruit, which is collected in large quantities at some points on the New England coast and sold in the markets for preserving. This plant, although only found growing naturally in light sandy gravel, flourishes and flowers profusely when transferred to the garden. The little Wild Cherry (*Prunus pumila*) of the northern United States blooms here a few days earlier than the Beach Plum. The common eastern form is a low shrub, rarely reaching a height of two feet; but western plants sent to the Arboretum from the shores of Lake Michigan, near Chicago, have tall virgate, erect branches, six to eight feet high. This variety flowers nearly ten days later than the eastern plants, and reproduces itself from seed. The small white flowers, two or three together, are produced in the greatest profusion. The fruit is hardly larger than a pea, bright red and destitute of flavor. The Dwarf Wild Cherry is found on dry, rocky or gravelly banks or hill-sides, and is an excellent subject for planting in waste places, or for an

* *Jour. Linn. Soc.*, xviii. 51.

undergrowth among other shrubs, or trees. It is very hardy, and easily cultivated.

The Ground Cherry (*Prunus Chamæcerasus*), with its small, glossy, coriaceous leaves, and small, abundant white flowers covering at this season of the year the long, slender branches, is a familiar object in many old-fashioned gardens in the United States, where it is generally seen grafted on a tall stem of the common Cherry tree, and forming a small and rather formal weeping tree. It is more attractive, perhaps, when grown naturally and on its own roots. It then becomes a graceful, low-branching bush, two or three feet high, gradually spreading over a considerable space. The Ground Cherry remains in bloom for a long time, and is perfectly hardy. A native of central and northern Europe and Russian Asia, it has been cultivated in gardens during more than three centuries. *Prunus avium*, the European Bird Cherry, the *Merisier* of the French, is in flower ten or twelve days later than the common Cherry tree (*P. Cerasus*). It is a handsome small tree, with ascending branches, coarsely toothed, soft leaves appearing with the large flowers, which are produced two or three together in sessile umbels, from lateral, scaly, leafless buds, and oval or ovate, dark red or black fruit. It is the origin of the Black Mazzard, the Black Heart and other garden cherries. A variety with double flowers, known since the days of Tournefort, should find a place in every collection of ornamental trees. The pure white, semi-double flowers are produced like those of the species with the leaves; they are composed of about 40 petals, thirty stamens and of an abnormally developed green abortive pistil. This is a smaller tree than the species, although equally hardy. It is sometimes known as *Prunus ranunculiflora* and as *P. avium multiplex*.

Some of the early flowering Hawthorns are in bloom. Of these the earliest and the handsomest is *Cratægus subvillosa*, a form, perhaps, of the exceedingly polymorphous *C. coccinea*, but, for garden purposes at least, sufficiently distinct to be considered a species. It is the largest of the Thorns growing spontaneously in the northern States, and one of the largest and most widely distributed of the American species, being found from eastern Massachusetts to Missouri and through the south-western States to the Sierra Madre Mountains of north-eastern Mexico. It is more common and better characterized west of the Mississippi River than in the eastern States, attaining, like several other species of this genus, its greatest size and beauty in the country adjacent to the Red River. *Cratægus subvillosa* is a round-headed tree, twenty to thirty feet high, with a stout short trunk, covered with light gray, scaly bark, rigid, smooth branches armed with long, stout, chestnut-brown spines. The leaves and broad foliaceous stipules are larger than on any other American Thorn; they are thin, glandular, especially on the petioles, roundish-ovate, cordate, wedge-shaped or truncate at the base, incised, and very sharply serrate, scabrous above, the lower surface, as well as the young branches, peduncles and calyx, densely tomentose. The flowers, in broad, flat corymbs, are produced in profusion; they are an inch or more across when expanded, pure white, the disk often bright scarlet. This species is, perhaps, more beautiful in the late summer than at this season of the year. Then it is loaded with large, bright, scarlet fruit, which is often more than an inch in diamater, and which is covered with a conspicuous bloom. The fruit of this species is the largest and by far the most showy produced by any of the Thorns which are hardy here. Unfortunately, it falls as soon as ripe, and long before the foliage takes on its brilliant autumn coloring. *Cratægus subvillosa* requires deep, rich soil in which to develop its greatest beauty. No other Thorn is more hardy here, or grows more rapidly into a handsome, shapely tree. *Cratægus Douglasii* is also in flower. This is the Thorn of the north-west coast, where, in the neighborhood of streams, it sometimes attains a height of thirty or forty feet. It is a handsome, round-headed tree here, worthy of a place in any collection, and interesting, too, in the fact that it is one of the very few ligneous plants peculiar to the coast region of Oregon and Washington Territory that is perfectly hardy in New England. It has stout, rigid branches, armed with short, stout, russet-brown spines, ovate, cuneate, coriaceous leaves one or two inches long, and small corymbs of white flowers a quarter to a third of an inch across, followed by small, black, edible fruit, which ripens here in August and soon drops.

Among foreign Thorns, *Cratægus sanguinea* and *C. nigra* are in bloom. The former is a widely distributed species through Siberia, Mongolia, northern China and Manchuria. It is well characterized by its broad, glandular stipules, shining, chestnut-brown, unarmed branches, smooth, purplish young shoots, and by the dark green, broadly-ovate leaves, wedge-shaped at the base, cut-toothed, and quite glabrous, except in its axils of the primary veins. The flowers are white with purple stamens, two-thirds of an inch across when expanded, and followed during the summer by small, purple, or sometimes red fruit. This is a very hardy species, which becomes here a small tree, ten or fifteen feet high, well worth cultivating for its early flowers and handsome dark green foliage. It is the *Cratægus purpurea* of Loudon's Arboretum, ii. 822; and is well figured in Pallas' "*Flora Rossica*," *t.* 11. *Cratægus nigra*, a native of Hungary, is here a hardy and fast growing tree. It has pale green leaves, sinuately lobed, sharply serrate, broadly wedge-shaped or truncate at the base, and covered on the under side, like the young shoots, petioles, peduncles and calyx, with a thick white tomentum. The rather large creamy white flowers are followed by handsome black fruit, which hangs upon the branches until the late autumn.

The Tartarean Honeysuckle needs only to be mentioned here, that attention may be directed to the fact that it is one of the very hardiest of all shrubs, which might be more often grown than it is at present, in the extreme northern parts of this country. There are many fine varieties in the Arboretum collection with flowers ranging in color from pure white through pink and rose to red. The handsomest are from St. Petersburg, where a great deal of attention has, in late years, been given to the improvement of this shrub. *Lonicera Ruprechtiana* is a very hardy bush Honeysuckle, a native of Manchuria, which here forms a handsome, erect shrub, six or eight feet high by as much through, and which in its native country, according to Maximowicz, its discoverer, is sometimes a small tree 20 feet in height. It has ashy-gray branches, pale, ovate, blunt or acuminate, entire leaves, an inch or an inch and a half long, with prominent reticulate veins, slightly downy on the under side. The flowers, which have no perfume, are produced in great profusion. They are white at first, but soon turn light yellow or straw color, long peduncled, the slender tube of the corolla an eighth of an inch long and scarcely half the length of the narrow divisions of the limb. The beauty of the fruit of this species excels that of any Honeysuckle in the collection. It is a third of an inch in diameter, bright scarlet and almost transparent, remaining a long time on the branches. *Lonicera Ruprechtiana* is one of the most desirable of the perfectly hardy shrubs of recent introduction, and is well worth cultivating for the beauty of the fruit alone.

The Wayfaring-tree (*Viburnum Lantana*) is the earliest Viburnum in flower in the collection, although the Moosewood (*V. lantanoides*), a far handsomer plant, but the most difficult, perhaps, of all the American shrubs to establish in the garden, has been blooming in the cold, damp woods of the north for nearly two weeks. *Viburnum Lantana* is a stout, tall, much-branched shrub, very common through central and southern Europe, and perfectly hardy in this climate. It bears ovate, sharply serrate leaves, three or four inches long, cordate at the base, soft and velvety on the upper side, densely covered, as well as the young shoots, with white, mealy down. The small, white flowers in dense cymes, two or three inches across, are followed by handsome, purple-black, oblong fruit.

Two exotic species of *Amelanchier* are in bloom several days after the native species have shed their petals, *A. vulgaris* and *A. Asiatica*. The former is a dwarf shrub or more rarely a small tree, with roundish-oval leaves downy on the lower side, long petals and blue-black edible fruit. It is a native of the mountainous regions of central Europe. *A. Asiatica* is a small, graceful tree here, with long, slender branches with smooth, gray bark, ovate-elliptical, acute leaves densely covered, when young, with white wool, and compound racemes of handsome, pure white flowers. The fruit has not yet been produced here. This very hardy and desirable plant was found by Von Siebold in Japan, where it is very commonly cultivated in gardens and in the neighborhood of Temples, although probably a native of northern or central China. It is well figured in the "*Flora Japonica*," t. 42.

Staphylea trifolia, the eastern-American representative of the Bladder-nuts, is in flower. The drooping, raceme-like clusters of white, bell-shaped flowers are very pretty; but as an ornamental shrub for the garden it is in every way inferior to *S. pinnata*, a native of southern Europe, with bolder foliage, and larger clusters of pure white, fragrant flowers. This is one of the handsomest of the European shrubs which can be cultivated here successfully; and it should find a place in every garden. It is recommended as a good subject for forcing in winter. The Japanese *S. Bumalda* is very hardy, but the foliage is small and the flowers are much less conspicuous than those of the eastern American or of the European species, and it will not be often cultivated except as a curiosity. The very handsome and exceedingly rare species of northern California

(*S. Bolanderi*) has not yet been introduced into cultivation; and the *S. Emodi* is not in this collection.

The earliest Elæagnus in flower is the Japanese *E. longipes*, a handsome shrub, six or eight feet high, with pale green, oval punctate leaves, stellate pubescent on the upper side and covered on the silvery under side, when young, as are the new shoots, peduncles and corolla, with small ferrugineous scales. The orange-colored flowers are long-stalked, with a long, slender tube and spreading limb, half an inch in diameter when expanded. The handsome, transparent, orange-colored, punctate fruit has an agreeable sub-acid flavor. This is a very hardy, free-growing plant well worth cultivation.

None of the evergreen Barberries (*Mahonia*) are very hardy in this climate, and they can only be grown when carefully protected in winter. The hardiest is *B. nervosa*, now flowering here for the first time. It is a dwarf evergreen shrub, with a smooth stem only a few inches high, producing from a terminal bud pinnate leaves one or two feet long the numerous acuminate leaflets palmately nerved, and elongated racemes of handsome yellow flowers. The oblong, blue fruit is a quarter to a third of an inch in diameter. *Berberis nervosa* is a native of the north-west coast.

May 30th. *J.*

The Forest.

Forest Tree Planting on the Prairies.

AMONG the various methods of planting trees on the prairies, two have been recommended as more expeditious than digging holes for the roots and covering with the spade. One is to mark off the ground both ways as for a corn crop, and at the intersection of the lines to strike the spade down vertically, and then push the handle forward and backward, leaving a slit in the ground. Into this the tree is then inserted, the earth is pressed with the foot and the tree is planted. This method may do for inserting cuttings, or such trees as will readily root from the stems, but the roots will be cramped into an unnatural position, and aside from this, as the ground dries it will shrink, allowing the air to penetrate and destroy the crowded roots. I have examined many plantations made in this way, and never saw one—except in the case of Poplars—where there were not more dead trees than living ones at the end of the season.

Another method often recommended, is to mark the ground one way and plow furrows the opposite way, and then place a tree in the furrow at every cross mark, and plow the earth back over the roots. This is also an objectionable method, for it is not possible to plant all the trees at the proper depth, nor to tighten the roots properly. And even if that is attempted it will occupy more time than it would require to plant them with the spade. I never saw a plantation treated in this way that did not show many failures, and an unevenness in the growth of the trees, aside from being more troublesome to cultivate than if properly planted. All that is claimed in favor of either of these methods is that it is more expeditious than planting with the spade.

I will now describe fully, the method which long experience has convinced me is not only the best, but, all things considered, the most expeditious way, and the only way in which a great number of inexperienced workmen can be handled to advantage.

As many land owners who are not farmers plant forests on the prairies, I will commence with the prairie in its natural condition. It is very important that the prairie sod should be "broken" at the proper time, otherwise the planting will be delayed at least one year, and even then will not be in as good condition as if broken at the proper time.

Break the prairie in June or at the time the grass is in the most thrifty condition. Break quite shallow, not deeper than two, or, at most, three inches, as the greater the succulent growth and the shallower the breaking, the more surely will the sod be killed during the summer. Late in August and during September of the same year, turn the sod over lengthwise of the furrow, and deep enough to bury the sod and leave two or three inches of earth over the entire surface. If it is not to be planted in the autumn leave the ground in this condition until the following spring, when the harrow and roller will put the land in excellent condition for planting. If planted in the fall run the harrow and roller after the plowing is finished, mark off the ground both ways for planting, strip the leaves from off the young trees, if frost has not already done so, then gauge the tree digger so as to cut the roots to the length required—six to eight inches, according to the depth and quality of the land—and commence planting.

The workmen are divided off into companies of three each, or two men and one boy, the two men with spades, the boy with a bundle of trees—the trees having previously been tied in bundles of 100 each. The two men with spades plant on adjoining rows, the tree holder walking between them. The planter strikes his spade vertically into the ground on the running line close up to the cross mark, raises a spadeful of earth, the boy inserts the tree, the earth is replaced, the planter places his foot close up to the stem of the tree, bearing on it his full weight—and passes on to the next mark. This tightening of the tree is very essential, and must be insisted on. The boy is kept quite busy attending two planters, but after a little experience he will learn to bring each tree out of his bundle with a quick circular motion that will spread out the roots when placed in the ground, about as evenly as they could be placed with the hand.

By this method the trees are planted in a straight line, and all at the proper depth, the roots are spread and the earth packed firmly over them. Two men and one boy will plant 4,500 trees in a ten-hour day, being two and one-half trees planted per minute for every man and boy employed, and the land will be left perfectly smooth and level for cultivating, making this not only the best, but the most expeditious way to plant forest trees on the prairie. *Robert Douglas.*

Correspondence.

Northern Range of the Western Service-berry.

To the Editor of Garden and Forest:

Sir.—According to Sir John Richardson, the Service-berry (*Amelanchier alnifolia*), which was figured and described in your last issue, produces fruit in the Mackenzie Valley as far to the northward as lat. 65°. It appears to require not only a considerable amount of summer heat, but also a climate not very humid, and though present on Vancouver Island and found by me in 1878 in the Queen Charlotte Islands, probably attains its northern limit on the west coast at the last named places, as it is there of rare occurrence and depauperated in appearance.

The examination of the basins of the Stikine and Liard rivers and the head-waters of the Yukon, carried out last summer, afford some information on the occurrence of this species in the region between the west coast and the Mackenzie Valley. The Amelanchier was found in abundance, though as a small shrub only, near Glenora and Telegraph Creek (lat. 58°), in the Stikine Valley, to the east of the Coast Mountains, where the climate is dry and contrasts very remarkably with that of the seaward side of the same range. It was here in full flower about the 20th of May. It was again seen in the autumn on Tagish Lake, near the head-waters of the Lewes Branch of the Yukon, a few miles north of the sixtieth parallel and at a height of 2,150 feet above the sea. This locality holds a position similar to the last with respect to the Coast Mountains, and it appears probable that the Amelanchier may occur throughout the intervening country in favorable situations, though evidently near its limit on Tagish Lake, where the fruit seemed scarcely likely to ripen.

The Amelanchier was again found, farther inland, in the dry eastern lee of the Cassiar Mountains, growing on gravelly terraces along the Dease River (lat 59° 10′, long. 129°). A line drawn to the northward of the various localities above mentioned will, I believe, define with near approximation to accuracy the north-western range of the Amelanchier, which is not mentioned in Rothrock's list of Alaskan plants nor in that of Dall.

From facts observed in several districts in British Columbia,

as well as in the Peace River country on the eastern slope of the Rocky Mountains, I believe that the degree and length of summer heat requisite for the development of this species closely corresponds with that necessary for the growth of wheat, and its distribution thus appears to possess a peculiar interest, regarded as a criterion of summer heat in places where cultivation has not yet been attempted. It may be mentioned that wheat has been successfully grown at Telegraph Creek on the Stikine and that barley is habitually cultivated there.

Ottawa, Canada. *George M. Dawson.*

To the Editor of GARDEN AND FOREST:

Sir.—When trees are planted in a lawn shall the grass be permitted to grow directly around the trees, or shall a circular space be left around them?

Shall trees be trimmed when they are first planted, and if so, in what manner? Will it be necessary or advisable to trim them the second year?

Providence, R. I., May 19th. *C. A.*

[Trees, especially when first planted, will grow more rapidly if the ground about them is kept free from grass and weeds by frequent cultivation. A top dressing of well rotted manure spread over the dug space about the tree in the autumn, once in every two or three years, and forked into the ground the following spring, is an assistance to all deciduous trees. In the case of low-branching Conifers, like Firs, Spruces, and some Pines, standing in grass where the lawn-mower is used, it is a good plan to cut a circle in the turf a few inches wider than the lower branches of the tree. A tree protected in this way cannot be reached by the lawn-mower, even in the hands of the most careless workman, and its lower branches will be saved from mutilation.

It is a not uncommon practice to prune trees severely at the time they are transplanted. All the branches and a considerable part of the stem are cut away sometimes, especially in the country, and nothing but a bare pole planted. Trees mutilated in this manner often live, and sometimes eventually grow into fine specimens. The object of leaves is to elaborate sap, and the more leaves a plant carries, the more vigorously it will grow. It is a mistake, therefore, and an injury to the tree, to reduce its leaf surface just at the time when it needs all its vitality to overcome the serious shock which transplanting gives it. If a transplanted tree needs pruning to improve its form or to remove a dangerous fork in the main stem, or from any other cause, it is much better to wait for a year or two, until it gets a good hold of the ground, rather than to prune it at the time of planting. The subject of tree pruning in its various aspects will be discussed in the columns of this journal, and it is only possible at this time to say, generally, in answer to the inquiry of our correspondent, that the objects to be attained in pruning an ornamental tree are to so form the head that all the branches may be exposed to the light, to stimulate the growth of feeble and check the too rampant growth of vigorous branches, and to prevent the forking of the main trunk too near the ground, and so preserve it from splitting. The one rule which should be followed always in pruning a tree, is, that when a branch is to be cut off, it should be cut close to the trunk, so that no stub is left to decay and carry rot into the heart of the tree, and that when a branch is shortened, it should be cut back, for the same reason, to a lateral branch or bud. If this rule is followed a well established tree cannot be injured and often can be greatly improved by pruning.—ED.]

To the Editor of GARDEN AND FOREST:

Sir.—Can you kindly advise me what to plant to make a hedge against a fence about four and a half feet high which is shaded, but not at all densely, by a few tall Cherry and Ailanthus trees, and which faces the north-east? Would Red Cedar do in such a situation? I should prefer an evergreen hedge, but do not like the Spruce for this purpose.

New Brunswick, N. J. *V.*

[The Red Cedar, the Hemlock, the Arbor-vitæ and the White Pine can all be used to make a hedge in New Jersey. All these trees grow rapidly and bear cutting. Deciduous shrubs, however, as a rule, make better hedges in this country than Conifers, as they can better support the unnatural conditions to which hedge-plants must be subjected if they are to be kept to formal lines. The common Privet is one of the hardiest and most easily raised plants which can be used for a hedge. The Barberry makes a beautiful hedge, and so do Lilacs, Syringas, Tartarian Honeysuckles and other hardy garden shrubs. A hedge is a formal thing, which is beautiful only when it is uniform and regular and perfect; a hedge in which there are gaps or in which some plants are feeble and sickly is not an attractive object, and had better be cleared away and a new one planted, as it is almost impossible to repair an old hedge by inserting new plants. This is the reason why it is important to use only very hardy and carefully selected plants in making a hedge. It would be impossible, probably, to make a really good hedge under the conditions given by our correspondent. The overhanging trees will inevitably stunt the growth of the plants under them; and the hedge will present, therefore, a broken and unsatisfactory appearance, which cannot fail to be disappointing. An irregularly planted border of hardy shrubs in front of a fence is always better than a stiff, clipped hedge; and when, as in this case, the fence is overshadowed by large trees, an informal plantation is the only one which can be safely used. The common Barberry and some of our native Viburnums and Dogwoods will be found excellent plants to use in this way.—ED.]

To the Editor of GARDEN AND FOREST:

Sir.—In passing from woods to prairie here in Minnesota, some points in difference of climate are forced on our notice.

About November 20th, 1886, a foot of snow fell in the woods north of Minneapolis, while on the prairie, fifty miles west, the ground was not well covered.

On April 1st, 1887, in the woods, near Aitken, sleds were running with fair sleighing, and crossing the lakes with heavy teams as in winter; while on the prairie, near Fergus Falls, the seeders were going.

On April 23d, 1888, the dense Tamarack swamps of the Itasca basin held two feet of snow; while on the clearings, 100 yds. away, and on all the ground well exposed to sun and south wind, the ground was bare. *H. B. Ayres.*

Recent Publications.

Pen and Pencil in Asia Minor; or notes from the Levant. By William Cochran. New York, Scribner and Welford.

This book, written by an Englishman who is a member of various British Agricultural Societies, is a combination of lively notes of travel with the serious and exhaustive discussion of an industry which the author has long been recommending to the notice of British colonists. Incidentally he gives interesting information with regard to the agricultural and fruit-growing possibilities of Asia Minor, especially as concerns the success which German colonists have had in raising the vine in the neighborhood of Smyrna. But his main object is to point out the possibilities and explain the processes of silk-culture as practiced in the Levant.

A long residence in China some twenty years ago convinced Mr. Cochran that the cultivation of the Tea-plant and of the Silk-worm might profitably be introduced in certain parts of Queen Victoria's dominions; and on his return to England he preached this belief so vigorously in the press and elsewhere, that, largely as a result of his words, Tea-farming was taken up on a great scale in Ceylon and in India. But the general adoption of sericulture in the east has been longer deferred, owing to the diseases which, for many years, had been raging among the silk-worms in China and which threatened the success of fresh enterprises of the sort. A few years ago, however, M. Pasteur devoted himself to examining these maladies and to providing a cure; and his lessons having been put in practice in the Levant, Mr. Cochran spent a season there for the purpose of studying the results. These, as seen in the large establishment near Smyrna of Mr. Griffitt—who although an English citizen, has for many years been the consul of the United States—proved to be entirely satisfactory. In his present book Mr. Cochran exhibits this fact in a clear way, and gives full accounts, carefully illustrated, of the whole process

of sericulture as it passed step by step under his eyes. One chapter is devoted to the Mulberry and other trees the leaves of which have been used or experimented with as food for the silk-worm. The White Mulberry—*Morus alba*—always the favorite Silk-worm food in the east, is pronounced to be the best tree for this purpose, although the success in Louisiana with the Osage-orange is recognized; and the manner in which it is propagated and grown are fully explained. The ingenious way in which Mr. Cochran has sandwiched in his instructive chapters among those which record the merely picturesque incidents and sights of his voyage will undoubtedly attract to his book a multitude of readers who would not have cared for a mere technical treatise on sericulture. But simply as a treatise of this sort it well deserves attention from all those who, in various parts of the United States, have recently engaged in the silk-producing industry.

Recent Plant Portraits.

Amaryllis Contessa Marianna Cambray Digny, *Bulletino de la R. Societa di Orticultura*, April; a variety with rather dingy red flowers streaked with white.

Tea Rose, Vicontesse de Wautier, *Journal des Roses*, April; a handsome pink and very double variety raised by Alexandre Bernaix at Villeurbonne, near Lyons, an offspring of *Madame de Tartas*, fecundated by the pollen of *Anna Olivier*.

Dichorisandra pubescens, var. *nov. Talmiensis*, *Revue de l'Horticulture Belge*, April; a handsome blue-flowered variety, the leaves striped with white, which appeared spontaneously in 1885 in the soil of a case of plants imported by the Botanic Garden of Brussels from Brazil.

Cordyline indivisa, var. Doncetiana, *L'Illustration Horticole*, March 15th; a variegated variety of Belgian origin, the edges of the leaves marked with yellow.

Tasconia Parritæ, *L'Illustration Horticole*, March 15th. A handsome stove climber from Brazil with large orange flowers.

Primula Sinensis, var. Edward Morren, *L'Illustration Horticole*, March 15th; a variety with pale blue flowers; a novelty in Chinese Primroses.

Adansonia Gregorii, *Gardener's Chronicle*, April 28th; the Australian Baobab; one of the largest trees known.

Douglasia lævigata, *Gardener's Chronicle*, April 28th; a pretty little alpine plant of the Primrose family, from the mountains of north-western America. This genus commemorates the botanical labors of David Douglas, a Scotch botanical traveler, who discovered and introduced into cultivation some of the most important trees of Western America.

Phalænopsis Schilleriana, *Gardener's Chronicle*, April 28th. "From an illustration from a photograph of plants in the collection of Fred. Scholes, Esq., of Brooklyn, who has been called the Partington of America, a compliment that is richly deserved, as our engraving undeniably proves. The two plants here depicted are fair representative examples (one being 3 feet in height), and only three years since were small pieces. Mr. Scholes is very liberal in the use of cow-manure in liquid form when his plants are making active growth. That he has practically demonstrated the efficacy of his treatment is proved by the luxuriance both in foliage and flowers of his *Phalænopsis*, one plant in his collection having no less than fourteen leaves from 8 to 15 inches long, and of remarkable substance. The plant carried three large branching spikes, and when in flower would be a marvel of beauty."

Notes.

Maple sugar was made this year in considerable quantities in California from the sap of the Broad-leaved Maple (*Acer macrophyllum*). The sugar is said to be of excellent flavor.

The annual meeting of the Society of American Florists in this city next August was to have been held in Tammany Hall. The burning of that building has somewhat embarrassed the local committee, but they have now secured the Fifth Avenue Theatre for that purpose.

Utricularia montana.—A splendid example of this showy plant is now flowering in the Orchid Houses occupied by Mr. I. Forstermann, of 50 Storm Ave., Jersey City. The plant mentioned has 26 stout spikes, on which are produced 100 large pure white blossoms of fine substance. This Bladderwort is sometimes classed with the Orchid family, to which genus it has no affinity. Its cultural requirements, however, are very similar, and it is invariably found in Orchid collections, where it thrives vigorously in a warm and very moist situation.

On the first of June Apples from New Zealand were on sale in San Francisco. According to so good an authority as the *Pacific Rural Press*, the fruit was not only shapely and handsomely colored, but firm and well-flavored. Apples from Victoria, are sold in the London market at from 2d. to 6d. each, and as the freight charges from the orchard to the seller are about 1¾d. a pound, this leaves a good margin for profit to the grower in the Southern Hemisphere.

Retail Flower Markets.

New York, *June 15th.*

The supply of flowers this week has only been fair, but it has been sufficient to meet the demand. The decorations of halls and theatres for Commencement exercises have consisted of a few groups of foliage plants; Graduates' favors have been large loose bunches of flowers, more often than basket designs. Flowers from shrubs seem to grow in demand every year and have never brought as high a price as they now do. Syringa sells for $1.00 a bunch of 18 large sprays, Weigela for 50 and 75 cts. a bunch. Snowballs are highly esteemed and cost $1.00 a bunch. Hybrid Roses are smaller, but are of good quality, excepting Baroness Rothschild, which averages poor. All Hybrids cost 40 to 50 cts. each, the latter price holding for those selected. They are $5.00 a dozen. Moss Roses cost 25 cts. a spray. Clusters of these with a few spikes of Mignonette are in demand for dinner favors. Genl. Jacqueminot Roses are small, but of rich colors, and bring $1.50 a dozen. Brides, Catherine Mermets, Niphetos and Perles are also $1.50 a dozen. Fine La France Roses cost $2.00 a dozen. There are some handsome Orchids (Cattleyas) arriving which cost $1.00 a flower. Pea blossoms are among the choice flowers added to bouquets and designs to give the last finish. They cost 50 cts. for a cluster of 18. Carnations cost 35 and 40 cts. a dozen. Pæonies range from 10 to 25 cts. each. The pink variety is in the largest request. Heliotrope is 50 cts. a bunch. Mignonette is poor and from 25 to 50 cts. a bunch. Field Daisies are very handsome and 15 cts. a dozen, and wild Buttercups cost 15 cts. a dozen. Gladioluses bring from 20 to 25 cts. a spike. Callas are scarce and 25 cts. each. Pansies cost 25 cts. a dozen. Lily-of-the-Valley is again coming in from green-houses.

Philadelphia, *June 15th.*

Roses everywhere, and as a result there is a temporary glut in the market. It is only in Roses, however, that the over-supply is noticeable. Many other flowers are scarce, as for example, good Carnations, especially the white varieties. The crimson, scarlet and other colored varieties are fair in quality, and cost 25 cts. a dozen. Sweet Peas are more plentiful, and sell readily at from 25 to 50 cts. a dozen. Lily-of-the-Valley holds its own at $1 a dozen. Mignonette and Heliotrope costs 25 cts. Hybrid Roses cost from $2 to $4 a dozen, according to quality and variety. Amongst out-door Roses there is a greater variety to select from than in the list of forcing sorts. Jean Liabaud and Louis Van Houtte are two favorites; the former is a velvety dark crimson, the latter is somewhat brighter and of very fine form. The dark Roses have not met with much favor in the winter for the past two seasons. American Beauty is still asked for, and sells at from $3 to $4 a dozen. Mermets, Bennetts and Brides are from $1 to $2 a dozen. Perles and Sunsets, 75 cts. to $1.50. Bon Silenes and Gontiers are getting thin, and bring 50 cts. a dozen. Water Lilies are 75 cts. per dozen. Field Daisies are plentiful, and sell at 25 cts. a dozen. Single Dahlias, $1 to $1.50 a dozen. Cornflowers, 25 cts. a dozen. There is a steady demand for any choice good flower. Indeed, June is a better month for the flower trade than May, for new things like Sweet Peas, Miniature Sunflowers and the yellow Cornflowers keep coming into bloom, and are always salable.

Boston, *June 15th.*

The cut flower market has been heavily overstocked during the past week. Belated crops, intended for Decoration Day, but delayed by cold weather, have been coming in from every direction, and the wholesale dealers have been loaded down with surplus stock. Roses in all varieties, excepting the choice hybrids, are very abundant. Of choice hybrids there are none. Carnations are also very plenty in all the standard varieties, such as Anna Webb, Grace Wilder, Buttercup, Hinze's White, E. G. Hill and Allagatiere. There is still a small supply of Lily-of-the-Valley obtainable from Canada. After this is exhausted the green-house crop will begin to come in again, at increased prices, and will be in market as a regular supply all summer. The roots from which this is produced are kept over from last season in ice-houses, and are thus held in a dormant condition until required. White Gilliflowers are abundant, and of best quality, very large and double. The choicer varieties of out-door flowers, such as Rhododendrons, Pæonies, Ghent Azaleas and Clematises, are used extensively in large baskets and decorations, and they help to make the florists' windows bright and attractive. Of Orchids a few Odontoglossums and Cattleyas (mainly *C. Mossiæ*) are in market. The demand for Lilies of all kinds is brisk, but very few are offered. Tea Roses bring 50 cts., but fancy sorts command from $1 to $2. Jacqueminots of rather inferior quality are held at $3, and Hybrids are scarce at $6. Carnations and Calendulas are 50 cts. a dozen. Stocks and Spiræa, 75 cts. Maidenhair Fern, 50 cts. Smilax, 50 cts. a string. Lilies-of-the-Valley cost $1 a dozen, and will probably cost twice as much in a few days. Rhododendrons are $5 a dozen; Ascension Lilies, $2; Harris' Lilies, $4, and a few Callas can be had for $3.